

a sum and difference signal generator arrangement configured so as to generate a first pre-emphasized digital signal as a function of the summation signal, and a second pre-emphasized directed signal as a function of the difference signal;

a signal transformation arrangement connected and configured so as to transform the first pre-emphasized digital signal to a digital BTSC compliant L+R signal, and transform the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

a digital-to-analog converter arrangement connected and configured to convert the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal, and the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

31 a composite signal generator arrangement configured so as to generate a composite signal as a function of the combination of the analog BTSC compliant L+R signal and a modulated version of the analog BTSC compliant L-R signal.

61. (New) The system according to claim 60, wherein the sum and difference signal generator arrangement comprises a digital signal processor arrangement programmed to digitally add pre-emphasis to each of the summation and difference signals.

62. (New) The system according to claim 60, wherein the signal transformation arrangement comprises an L-R data path and an L+R data path, each path having a preselected sample rate.

63. (New) A method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal and converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal, and generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal as a function of the summation signal, and generating a second pre-emphasized digital signal as a function of the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal and transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

converting the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal, and converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

generating a composite signal as a function of a combination of the analog BTSC compliant L+R signal and a modulated version of the analog BTSC compliant L-R signal.

64. (New) The method according to claim 63, further comprising:

generating a modulated version of the analog BTSC compliant L-R signal after converting the digital BTSC L-R signal to an analog BTSC compliant L-R signal.

65. (New) The method according to claim 63, wherein the step of generating the first pre-emphasized digital signal and generating the second pre-emphasized digital signal comprises:

using a programmed digital signal processor arrangement to digitally add pre-emphasis to each of the summation and difference signals.

66. (New) The method according to claim 63, wherein the step of transforming the first pre-emphasized signal and transforming the second pre-emphasized signal comprises:

sampling the first pre-emphasized signal at a first preselected sample rate, and sampling the second pre-emphasized signal at a second preselected sample rate.

67. (New) The method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal;

converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal;

generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal corresponding to the summation signal;

generating a second pre-emphasized digital signal corresponding to the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal;

transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

converting the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal;

converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

generating a composite signal as a function of a combination of the analog BTSC compliant L+R signal with a modulated version of the analog BTSC compliant L-R signal.

68. (New) The method according to claim 67, further comprising:

generating a modulated version of the analog BTSC compliant L-R signal after converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal.

69. (New) A system for generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

an analog-to-digital converter arrangement configured so as to convert the right-channel signal to a right digital signal and convert the left-channel signal to a left digital signal;

a signal combiner arrangement coupled to the analog-to-digital converter arrangement and configured so as to generate a summation signal comprising the sum of the right digital signal and the left digital signal, and generate a difference signal comprising the difference between the right

digital signal and the left digital signal;

a sum and difference signal generator arrangement configured so as to generate a first pre-emphasized digital signal as a function of the summation signal, and a second pre-emphasized digital signal as a function of the difference signal;

a signal transformation arrangement connected and configured so as to transform the first pre-emphasized digital signal to a digital BTSC compliant L+R signal, and transform the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

B1 a composite signal generator arrangement configured so as to generate a digital composite signal as a function of the combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal; and

a digital-to-analog converter arrangement connected and configured to convert the digital composite signal to an analog composite signal.

70. (New) The system according to claim 69, wherein the sum and difference signal generator arrangement comprises a digital signal processor arrangement programmed to digitally add pre-emphasis to each of the summation and difference signals.

71. (New) The system according to claim 69, wherein the signal transformation arrangement comprises an L-R data path and an L+R data path, each path having a preselected sample rate.

72. (New) A method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal and converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal, and generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal as a function of the summation signal, and  
generating a second pre-emphasized digital signal as a function of the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal  
and transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

generating a digital composite signal as a function of a combination of the digital BTSC  
compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal; and  
converting the digital composite signal to an analog composite signal.

73. (New) The method according to claim 72, further comprising:

generating a modulated version of the digital BTSC compliant L-R signal before converting  
the digital composite signal to an analog composite signal.

74. (New) The method according to claim 72, wherein generating the first pre-  
emphasized digital signal and generating the second pre-emphasized digital signal comprises:

using a programmed digital signal processor arrangement to digitally add pre-emphasis to  
each of the summation and difference signals.

75. (New) The method according to claim 72, wherein transforming the first pre-  
emphasized digital signal and transforming the second pre-emphasized digital signal comprises:

sampling the first pre-emphasized digital signal at a first preselected sample rate, and  
sampling the second pre-emphasized digital signal at a second preselected sample rate.

76. (New) The method of generating a broadcast television stereo signal from a left-  
channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal;

converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left  
digital signal;

generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal corresponding to the summation signal;

generating a second pre-emphasized digital signal corresponding to the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal;

transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

B1 generating a digital composite signal as a function of a combination of the digital BTSC compliant L+R signal with a modulated version of the digital BTSC compliant L-R signal; and  
converting the digital composite signal to an analog composite signal.

77. (New) The method according to claim 76, further comprising:

generating a modulated version of the digital BTSC compliant L-R signal before generating the digital composite signal.

78. (New) A digital signal processor arrangement for use in generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

a signal generator arrangement configured so as to generate a digital summation signal as a function of the sum of the left-channel and right-channel signals, and a digital difference signal as a function of the difference between the left-channel and right-channel signals;

a summation signal signal processing arrangement including a filter arrangement configured to filter the digital summation signal so as to produce a conditioned digital summation signal;

a difference signal signal processing arrangement including a pre-emphasis filter arrangement and a signal compressor arrangement, the filter and signal compressor arrangements being configured so as to condition and compress the digital difference signal so as to produce a conditioned digital difference signal;

a digital-to-analog converter arrangement for converting the conditioned digital summation

signal to an analog sum signal, and the conditioned digital difference signal to an analog difference signal; and

a signal combiner arrangement configured so as to combine the analog sum signal with a modulated version of the analog difference signal.

79. (New) An arrangement in accordance with claim 78, wherein the filter arrangement of the summation signal signal processing arrangement is configured so as to filter the digital summation signal with a  $75 \mu s$  pre-emphasis so as to produce a conditioned digital summation signal.

80. (New) A digital signal processor arrangement for use in generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

a signal generator arrangement configured so as to generate a digital summation signal as a function of the sum of the left-channel and right-channel signals, and a digital difference signal as a function of the difference between the left-channel and right-channel signals;

a summation signal signal processing arrangement including a filter arrangement configured to filter the digital summation signal so as to produce a conditioned digital summation signal;

a difference signal signal processing arrangement including a pre-emphasis filter arrangement and a signal compressor arrangement, the filter and compressor arrangements being configured so as to condition and compress the digital difference signal so as to produce a conditioned digital difference signal;

a signal combiner arrangement configured so as to combine the conditioned digital summation signal with a modulated version of the conditioned digital difference signal so as to generate a composite modulated signal; and

a digital-to-analog converter arrangement for converting the composite modulated signal to an analog output signal.